Retrovirology

Poster presentation

Modulation of Cytokine Production by the Transmembrane Envelope Protein gp41 of HIV-1

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Elevated IL-6, IL-10, IL-8, gro-alpha and TNF-alpha and decreased IL-2 values have been regularly observed in HIV infected individuals. To study the influence of the transmembrane envelope protein gp41 of HIV-1 on the cytokine production by human blood donor PBMCs, additional cytokine arrays (RayBiotech) that measured the release of about 100 cytokines, were used. In parallel a synthetic peptide corresponding to a domain highly conserved amongst all retroviruses, the so-called immunosuppressive (isu-) domain, was studied. The isu-peptide was used as a homopolymer, since unconjugated peptides were inactive. The expression of cytokines such as IL-6, IL-8, IL-10, RANTES, MCP-1, MCP-2, gro-alpha, TNF-alpha, MIP-1alpha, MIP-1beta, MIP-3 increased upon exposure to the transmembrane envelope protein gp41 and the isu-peptide of HIV. In contrast, the expression of IL-2 decreased and the expression of the other cytokines remained unchanged. The extent of changes in the cytokine expression varied from donor to donor. These data confirm and extend previous data obtained with purified HIV-1 and porcine endogenous retrovirus (PERV) particles, the transmembrane envelope proteins gp41 of HIV-1 and p15E of PERV and their isu-peptides. These data indicate that retroviral transmembrane envelope proteins modulate the cytokine production of normal PBMCs and therefore may play an important role in retrovirus-induced immunopathogenesis.